Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

RESEARCH ACTIVITIES

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AHRQ study finds a decline in adverse events for heart attack, heart failure patients

Adverse events for patients being treated for heart attack and heart failure have declined, according to a new study published in the January 23 issue of the *New England Journal of Medicine*. However, the analysis funded by AHRQ found that there has not been a significant decrease in adverse events for patients being treated for pneumonia and those who are recovering from surgery.

The study, "National Trends in Patient Safety for Four Common Conditions, 2005 to 2011," compared the rate of 21 adverse events that occurred among hospital patients in 2005–2006 with those that happened in 2010–2011. The 21 adverse events included drug reactions, hospital-acquired pressure ulcers, falls, and several healthcare-associated infections. Researchers found that 81,000 adverse events among heart attack and heart failure patients were averted annually in 2010 and 2011 compared with 2005 and 2006. However, some common adverse events in pneumonia and surgical patients, such as pressure ulcers and urinary tract infections, did not show improvement.

Heart patients are having fewer adverse events today than they have before, which is a major achievement for the Nation.

"Heart patients are having fewer adverse events today than they have before, which is a major achievement for the Nation," said AHRQ Director Richard Kronick, Ph.D. "However, the data show that significant challenges remain in our efforts to make care safer for all patients."

The study authors, led by Yun Wang, Ph.D., senior research scientist at the Harvard School of Public Health's Department of Biostatistics, and Noel Eldridge, M.S., public health specialist at AHRQ, used Medicare Patient Safety Monitoring System data abstracted from medical records of patients 65 and older. The

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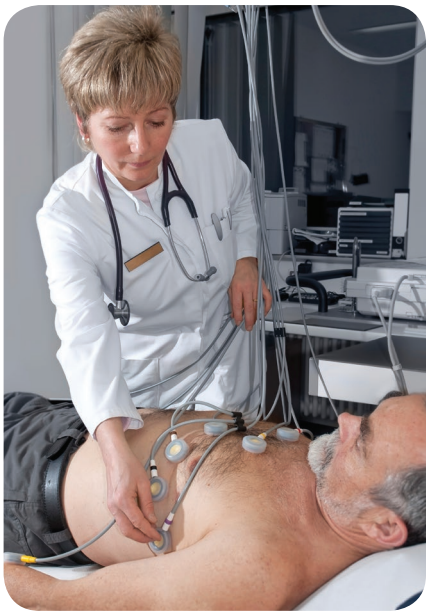

Patient being prepared for electrocardiogram to detect heart problems.

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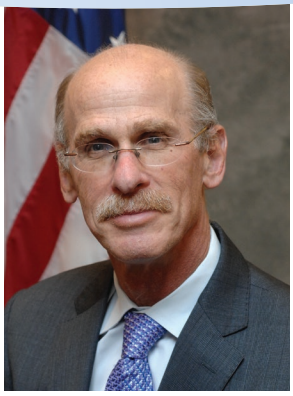
From the Director



In last month's *Research Activities* cover story, I had the chance to share my thoughts about the Agency's mission and priorities going forward. Your many comments reflect the interest and passion so many have not only for the field of health services research, but for AHRQ as well.

As I indicated, making health care safer will remain one of the Agency's key priorities. Too many patients continue to be harmed in the course of receiving treatment. For example, an estimated 1 in 7 hospital patients experience preventable harm during their care.

AHRQ's patient safety research focuses on the ways that patients are harmed – and not just in hospitals or acute care settings – why the harm occurs, and how to prevent it. An example of that research is described in the study on this issue's cover.

AHRQ public health specialist, Noel Eldridge, M.S., and Yun Wang, Ph.D., senior research scientist at the Harvard School of Public Health, used AHRQ's Patient Safety and other indicators to examine adverse events among patients hospitalized for four common conditions. The good news is they found a significant decline in adverse events for heart attack and heart failure patients, although not for patients being treated for pneumonia and those recovering from surgery. These findings underscore the need for improvement in safety areas that AHRQ continues to tackle and improve.

AHRQ continues to work in collaboration with the Department of Health and Human Services (HHS) and other partners to develop tools and resources for providers and others to use in making health care safer. For instance, the Agency has spearheaded many initiatives in the area of reducing healthcare-associated infections.

AHRQ's hospital safety initiatives range from recommending 10 safety practices that hospitals and other health care facilities should adopt now based on its safety evidence report, and a hospital culture survey that can help hospitals assess and improve their safety culture, to numerous clinical tools and checklists to help hospitals, nursing homes, and other health care facilities reduce adverse events such as falls, pressure ulcers, and healthcare-associated infections.

AHRQ is making headway to improve safety in many of these and other areas. I encourage you to follow developments underway both at AHRQ and HHS, and through initiatives such as the Partnership for Patients, and to watch this column for information you can use to improve care, policy, and research.

Richard Kronick, Ph.D.

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researchers found that from 2005 to 2011, the rate of heart attack patients experiencing one or more adverse events fell from 26.0 percent to 19.4 percent and the rate for heart failure patients experiencing adverse events fell from 17.5 percent to 14.2 percent. No significant changes were found in the rate of adverse events experienced by patients who had surgery or those being treated for pneumonia.

Among patients in each of these four groups, experiencing one or more adverse events was correlated with a longer length of stay and an increased chance of dying in the hospital. However, the data were not sufficient to prove that the increased lengths of stay and death rates were due to the adverse events.

However, the data show that significant challenges remain in our efforts to make care safer for all patients.

AHRQ continues to build the evidence base on what works and what doesn't to improve patient safety. The Agency has developed a wide range of tools to help improve patient safety in hospitals and other settings, which can be found online at www.ahrq.gov/professionals/quality-patient-safety/index.html. AHRQ is a key participant in the Partnership for Patients initiative, a public-private partnership working to improve the quality, safety, and affordability of health care for all Americans by reducing preventable hospital acquired conditions by 40 percent from 2010 to 2013. More information about the Partnership for Patients initiative can be found at http://partnershipforpatients.cms.gov. ■

Patient Safety and Quality of Care

30-day rehospitalization is a poor indicator of outcomes and resource use in patients with heart failure

Among Medicare beneficiaries, heart failure is the most common reason for hospitalization. The associated costs exceed more than $38 billion each year. More than a quarter of patients in the hospital for heart failure will be readmitted within 30 days of their discharge. Medicare and Medicaid are looking for ways to prevent these rehospitalizations. Hospitals may feel pressured to discharge patients early to maximize revenue.

A new study concludes that the total inpatient days over an episode of care (EOC) is the best indicator of resource use for hospitalized patients with heart failure and rehospitalization within 30 days is a poor indicator of resource use.

Researchers used data from the American Heart Association's Get With the Guidelines®-Heart Failure quality improvement registry, which is linked to Medicare claims. They analyzed data on 17,387 patients with heart failure at 149 hospitals. Hospitals were ranked and compared by length of stay (LOS), 30-day readmission rate, and overall EOC metric defined as all hospital days for a heart failure admission and any subsequent admissions within 30 days.

The median 30-day readmission rate was 23.2 percent and the median LOS was 4.9 days. The overall EOC was 6.2 days. According to the findings, the hospital heart failure readmission rate was not associated with initial hospital LOS. No association was found between 30-day readmission and decreased 30-day mortality. The better performing metric was the EOC. A shorter length of stay was associated with decreased odds of 30-day mortality. Interestingly, hospitals with the shortest rates of 30-day readmission performed worse on heart failure performance measures. According to the researchers, total hospital days over a 30-day EOC may be a more accurate measure of outcomes and resource use when it comes to heart failure care. The study was supported in part by AHRQ (HS16964).

See "Are we targeting the right metric for heart failure? Comparison of hospital 30-day readmission rates and total episode of care inpatient days," by Robb D. Kociol, M.D., Li Liang, Ph.D., Adrian F. Hernandez, M.D., M.H.S., and others in the June 2013 *American Heart Journal* 165, pp. 987-994.e1. ■ *KB*

Computer reads surgeon's hand gestures to manipulate radiological image without breaking operating room sterility

A surgeon is gowned, masked, and gloved for an operation, looking at a radiographic image of the area of the patient's body requiring surgery. But the surgeon needs to move or enlarge the image to see the problem more clearly. What does he (or she) do? Using a mouse or computer keyboard (both difficult to rid of infectious bacteria) breaks sterility. This allows the possible transfer of antibiotic-resistant bacteria to the surgeon's glove, thus increasing the chance of a health-care-associated infection.

To prevent this, Juan Pablo Wachs, M.Sc., Ph.D., and his colleagues at Purdue University have developed and tested a computer–vision system that recognizes hand signals made by the surgeon and translates them into commands for manipulating the radiographic image display, without the need to risk contamination of the sterile gloves.

In the project, the researchers asked 10 surgeons to suggest hand and arm motions that would be easy to learn as hands-free commands for the manipulation of magnetic resonance imaging (MRI) representations of a patient's internal organs and tissues. Dr. Wachs and his colleagues were able to identify a group of 10 fairly intuitive gestures—each suggested by at least 2 surgeons—for commands to enlarge or reduce the magnification of the MRI, rotate it clockwise or counterclockwise, move it right/left or up/down, and to increase or decrease the image brightness.

The gesture-recognition software was tested by 20 volunteers (12 men, 8 women). The observed mean gesture recognition accuracy for all 10 commands was 97.2 percent, and ranged from 82.5 percent for the "decrease brightness" gesture to 100.0 percent for "browse right" and "browse down" gestures. Use of contextual information (such as the user's body orientation) reduced the false-positive rate from 20.8 percent to 2.3 percent. The study was funded by AHRQ (HS19837).

More details are in "Hand-gesture-based sterile interface for the operating room using contextual cues for the navigation of radiological images," by Mithun George Jacob, M.S.E., Dr. Wachs, and Rebecca A. Packer, M.S., D.V.M., in the June 2013 *Journal of the American Medical Informatics Association* 20(e1), pp. e183-e186. *DIL*

Outpatient antimicrobial stewardship program lowers use of broad-spectrum antibiotics by pediatricians

Unnecessary prescribing of antibiotics for acute respiratory tract infections (ARTIs) caused by viruses, which don't respond to antibiotics, has been declining. However, inappropriate prescribing also occurs for bacterial ARTIs, particularly when broad-spectrum antibiotics are used to treat infections for which narrow-spectrum antibiotics are indicated and recommended. An outpatient antimicrobial stewardship program can improve pediatricians' antibiotic prescribing practices, according to a new study.

It found that when a program to reduce the overuse of broad-spectrum antibiotics was implemented, among children who were prescribed antibiotics for any indication, the overall proportion of broad-spectrum antibiotics prescribed decreased from 26.8 percent to 14.3 percent in the intervention group and from 28.4 percent to 22.6 percent in the control group.

The program involved clinician education coupled with audit and feedback of antibiotic prescribing across a pediatric primary care network with 18 practices. During the study period, there were 1,291,824 office visits by 185,212 patients.

The researchers tracked antibiotic use for pneumonia, streptococcal pharyngitis, and acute sinusitis during a 12-month period following initiation of the program. Off-guideline antibiotic prescribing for pneumonia decreased from 15.7 percent to 4.2 percent in the intervention group, compared with a decline from 17.1 percent to 16.3 percent in the control group.

Broad-spectrum prescribing for acute sinusitis decreased from 38.9 percent to 18.8 percent in the intervention group and from 40.0 percent to

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Antibiotics

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33.9 percent in the control group. Broad-spectrum prescribing for both streptococcal pharyngitis and viral ARTIs was low at baseline and remained unchanged.

Despite professional society recommendations that penicillin or amoxicillin be used as first-line agents for streptococcal pharyngitis, acute sinusitis, and pneumonia, roughly 50 percent of children receive broader-spectrum antibiotics for these common infections. Antimicrobial stewardship programs are recommended to optimize antimicrobial use in hospitalized patients, most often through the use of prospective audit and feedback of antibiotic prescribing. In contrast, few recommendations for outpatients are offered, largely because data is lacking regarding effective interventions in ambulatory medicine.

These findings suggest that extending antimicrobial stewardship to the ambulatory setting, where such programs have generally not been implemented, may have important health benefits, including reduced antibiotic resistance pressure, and unnecessary adverse

drug effects. This study was supported by AHRQ (Contract No. 290-07-10013).

See "Effect of an outpatient antimicrobial stewardship intervention on broad-spectrum antibiotic prescribing by primary care pediatricians," by Jeffrey S. Gerber, M.D., Ph.D., Priya A. Prasad, M.P.H., Alexander G. Fiks, M.D., and others in the June 12, 2013 *Journal of the American Medical Association* 309(22), pp. 2345-2352. ■ *MWS*

Large for-profit dialysis chains use significantly more injectable medications compared to non-profits

Patients receiving dialysis may receive a variety of injectable drugs, including epoetin (to manage anemia), iron, and vitamin D. Dialysis facilities frequently use these drugs to subsidize their declining Medicare payments for routine dialysis and laboratory services. However, patients receiving dialysis from large for-profit facilities have a higher risk of dying. In fact, a new study found that large for-profit chain facilities gave higher dosages of epoetin, iron, and vitamin D, but their administration did not result in improved survival.

The U.S. Renal Data System was used to obtain data on 3,884 freestanding dialysis facilities.

Researchers identified 37,942 Medicare patients with end-stage renal disease in 2006. During the next 2 years, the researchers evaluated the use of the three injectable drugs commonly used in dialysis patients. The specific endpoint of the study was all-cause mortality during the 2-year followup.

After the study period, 44 percent of patients survived and 31 percent died. Another 25 percent were eliminated from the study for various reasons. More than 70 percent of patients in 2006 received their dialysis from the four largest chain facilities. Large for-profit chains had higher epoetin dosages as well as higher vitamin D dosages compared with non-profit chains and independent facilities. However, this did not result in improved survival. The researchers call for more studies to understand how dialysis facility status affects outcomes. The study was supported by AHRQ (HS18697).

See "Organizational status of dialysis facilities and patient outcome: does higher injectable medication use mediate increased mortality?" by Yi Zhang Ph.D., Mae Thamer, Ph.D., Onkar Kshirsagar, M.S., and Dennis J. Cotter, M.S.E., in the June 2013 *HSR: Health Services Research* 48(3), pp. 949-971. ■ *KB*

AHRQ health literacy tools help pharmacists identify opportunities to improve communication

Pharmacists serve an important role in providing health and medication information to patients, yet much of the information is presented in such a way that it is too complex for most adults. Pharmacists could improve practices by using four health literacy tools developed by AHRQ. One of the tools is an assessment tool used to assess a pharmacy's health literacy practices by completing an observation of the pharmacy, a survey of pharmacy staff, and patient focus groups. Other tools include a staff training guide and information on how to create automated telephone refill reminders.

Researchers investigated the factors related to adopting these tools and what barriers pharmacies may face in implementing them. Eight pharmacies were selected for the study. Two of the pharmacies had decided not to use the tools before the study (non-users) and 1 pharmacy decided on their own to use the tools (spontaneous user). The other 5 pharmacies (recruited users) were willing to implement the tools. The study used case study methods consisting of site visits, interviews, and a review of pharmacy documents and tool results.

Only one pharmacy completed all four parts of the Assessment Tool. The five recruited pharmacies viewed health literacy as an important issue prior to adopting the tools. Four of the five recruited pharmacies and the spontaneous pharmacy encouraged a culture of innovation where the leaders supported improvements. Tool implementation was successful where there was a "change champion" to use it. These champions felt the tools provided valuable information and improved patient care. They found that an

invitation to use the tools and ongoing support were important to adopting the tools. In addition to lack of leadership support and time, other barriers to adopting and implementing the tools included perceiving the tools as too complex with limited value, and lack of qualified staff.

According to the researchers, if more pharmacies assessed their health literacy practices using tools like these and had guidance on how to improve health literacy practices, it could mean important progress toward achieving the goals of the National Action Plan To Improve Health Literacy. The tools are available at http://go.usa.gov/ZeNk. The study was supported by AHRQ (Contract No. 290-06-0001).

See "Factors affecting adoption implementation of AHRQ health literacy tools in pharmacies," by Sarah J. Shoemaker, Pharm.D., Ph.D., Leah Staub-DeLong, B.A., Melanie Wasserman, M.P.A., Ph.D., and Mark Spranca, Ph.D., in *Research in Social & Administrative Pharmacy* pp. 1-11, 2013. *KB*

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Note: Only items marked with a single (*) asterisk are available from the AHRQ Clearinghouse. See the back cover of Research Activities for ordering information. Consult a reference librarian for information on obtaining copies of articles not marked with an asterisk.

Lessons from the U.S. educational system for the health care system

Health care delivery in the United States is fragmented, with no central structure or organization. Achieving an organized health care delivery system will require radical change. In this commentary, the authors envision how radical system-level reform might borrow from another public sector: education. Their proposed solution for the U.S. health care system is modeled after an admittedly idealized version of the U.S. public education system, with a mix of public and private providers governed by regional planning, organization, and oversight.

Their model envisions a national system of community health centers (CHCs) administered by community district health boards (similar to school boards) whose members are elected periodically. These boards would have the authority to supervise central administration, balance budgets, and conduct systemwide strategic planning. Each district's system of CHCs would provide comprehensive public health, preventive health, and primary care services. The boards would also obtain secondary and tertiary care services by direct provision or contract. All CHCs in a given district would use the same electronic medical record system.

Much of the funding for this system would come from existing public insurance dollars divided up by district, with allocations based on population measures of health and health care needs. The authors hope to encourage creative thinking about other system-level communities of solution that could lead to profound change and improvements in the U.S. health care system. This study was supported in part by AHRQ (HS16181, HS18569).

See "Community of solution for the U.S. health care system: Lessons from the U.S. educational system," by Jennifer E. DeVoe, M.D., and Rachel Gold, Ph.D. in *Journal of the American Board of Family Medicine* 26, pp. 323-326, 2013. ■ *MWS*

Health Information Technology

Electronic health records can lower prescribing errors

A study of physicians who transitioned from a locally developed electronic health record (EHR) to a new, commercial EHR found that, over time and with system refinements, use of a commercial EHR with advanced clinical decision support led to lower prescribing errors. Error rates were significantly lower 2 years after transition compared to pre-implementation, and 12 weeks and 1 year after transition. The principal refinement to the EHR was a reduction in alert firings. The study included 1,905 prescriptions written by 16 physicians at an academic-affiliated ambulatory clinic.

The new study suggests that iterative system refinements to an EHR, such as the reduction in alert firings, can help maximize safety benefits. This study was supported by AHRQ (HS17029).

See "A long-term follow-up evaluation of electronic health record prescribing safety," by Erika L. Abramson, M.D., Sameer Malhotra, M.D., S. Nena Osorio, M.D., and others in the *Journal of the American Medical Informatics Association* 20, pp. e52-e58. *MWS*

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Health information exchange reduces use of repeated diagnostic imaging for back pain

Health information exchanges (HIEs), which share electronic health information across health care organizations within a region, community, or hospital system, are advocated as essential to improving health care quality and reducing costs. For example, a new study found that use of an HIE reduced repeated diagnostic imaging for back pain. People with back pain who arrive at the emergency department (ED) often receive unnecessary imaging tests.

The study assessed how often ED personnel treating patients with low back pain checked HIEs for patients' imaging results and how that affected the frequency of re-imaging. It found that HIE use was associated with 64 percent lower odds of repeat diagnostic imaging. The decrease in overall diagnostic imaging was attributable to decreases in plain radiography. Magnetic resonance imaging was used only 2 percent of the time, both for visits with HIE use and those without. However, use of high-cost computed tomography of the spine was higher with health exchange use (2 percent) than without health exchange use (1.3 percent). The end result was no cost savings.

The HIE was accessed in 12.5 percent of 800 cases included in the study; 10 percent of these patients received additional imaging. In contrast, 24 percent of patients were reimaged when the HIE was not accessed. The patients included in the study were treated at 15 major hospitals and 2 regional clinics in the Memphis metropolitan area. This study was funded in part by AHRQ (Contract No. 290-04-0006).

For further details, see "Health information exchange reduces repeated diagnostic imaging for back pain," by James E. Bailey, M.D., Elizabeth C. Elliott, M.D., Jim Y. Wan, Ph.D., and others in the July 2013 *Annals of Emergency Medicine* 62(1), pp. 16-24. ■ *MWS*

Resident, attending faculty physicians find patient portal experiences not what they expected

Expectations of residents and attending physicians prior to implementation of a patient portal varied significantly from the post-implementation reality, according to a new study. Patient portals provide secure electronic communications between physicians and patients, as well as patient access to selected parts of their electronic health record. They also sometimes allow patients to perform other functions (emails to clinician, prescription refills, appointment scheduling, or viewing clinical laboratory or imaging results). The portal in this study was established in select general internal medicine and family and community medicine clinics at the University of Missouri Health System.

Richelle J. Koopman M.D., M.S., David R. Mehr, M.D., M.S., and their colleagues at the University of Missouri–Columbia surveyed 39 residents and 43 attending physicians prior to portal implementation about the number of emails received from patients in a typical month. They found that 68.4 percent of the residents, but only 9.3 percent of attending physicians reported receiving none. On the other hand, no residents, but 20.9 percent of attending physicians reported receiving more than 20 emails in a typical month.

Attending physicians and residents typically agreed on statements about the likely impact of implementing a patient portal, except for significant differences on whether increased electronic communication with patients would hurt their clinical income (21 percent of residents vs. 43 percent of attending physicians agreed with the statement) and whether, given the choice, they would allow patients to view selected parts of their medical records (57 percent of residents vs. 81 percent of attending physicians would).

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Patient portals

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After portal implementation, significantly fewer faculty physicians than before implementation agreed that electronic communications with patients would increase their workload (13 percent vs. 65 percent) or would decrease the number of phone calls from patients (27 percent vs. 82 percent). However, after implementation significantly more agreed that the portal would increase their professional satisfaction (33 percent vs. 0 percent). The study was funded in part by AHRQ (HS17035, HS17948).

More details are in "Patient portal implementation: Resident and attending physician attitudes," by Lynn E. Keplinger, M.D., Drs. Koopman and Mehr, and others in the May 2013 *Family Medicine* 45(5), pp. 335-340. ■ *DIL*

Chronic Disease

Hospitalization rates for chronic obstructive pulmonary disease declined between 1999 and 2006

Chronic obstructive pulmonary disease (COPD) accounts for one fifth of all hospitalizations in individuals over 75 years of age, and is the third most common cause of early readmission among the elderly. Over the last 15 years, numerous advances have been made in the pharmacologic treatment and overall management of COPD. A new study suggests that these new approaches may have improved outcomes for patients with COPD. The study of over 400,000 Medicare beneficiaries diagnosed with COPD between 1999 and 2006 found that the hospitalization rate decreased by 18 percent for all causes, by 24 percent for all respiratory causes, and by 14 percent for all nonrespiratory causes. Likewise, the number of patients who experienced 2 or more acute COPD exacerbations decreased by 23 percent over the 10-year study period.

A number of factors may have contributed to reduced hospitalizations for all respiratory causes. First, the use of long-acting beta agonists with corticosteroids, which increased after the release of combination long-acting beta agonists and corticosteroids in 2000, and the release of Global Initiatives for Chronic Obstructive Lung Disease guidelines in 2001 may have helped reduce the rate of acute exacerbations of COPD.

Second, an increase in the influenza vaccination rate among older adults in the United States may have contributed to reduced morbidity. Other factors include a decline in the adult smoking rate, reduced exposure to second-hand smoke and other environmental exposures, and improved access to screening and other preventive services. This study was supported in part by AHRQ (HS20642).

See "Temporal trends in hospitalization rates for older adults with chronic obstructive pulmonary disease," by Jacques Baillargeon, Ph.D., Yue Wang, M.S., Yong-Fang Kuo, Ph.D., and others in *American Journal of Medicine* 126, pp. 607-614, 2013. *MWS*

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Increased use of noninvasive ventilation could save more lives for patients with chronic obstructive pulmonary disease

Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) account for 1.5 million emergency department (ED) visits and 726,000 hospitalizations each year in the United States. Over the last 20 years, noninvasive ventilation (NIV) has emerged as a potentially useful treatment in AECOPD patients with acute respiratory failure. NIV commonly refers to positive-pressure breathing support delivered through a nasal or full-face mask. Since earlier, small studies have shown that NIV use resulted in fewer complications and shorter hospital stays than invasive mechanical ventilation (IMV), researchers decided to look at the use of NIV treatment in a much larger patient population.

Their study of 67,651 ED visits for AECOPD found that NIV use, compared with IMV, was associated with a reduction of inpatient mortality of 46 percent, shortened hospital length of stay by 3 days, reduced hospital charges by approximately $35,000 per visit, and modestly reduced risk of iatrogenic pneumothorax. The frequency of NIV use (including combined use of NIV and IMV) varied widely among hospitals, ranging from 0 percent to 100 percent with a median of 11 percent. Hospitals in the Northeast and in nonmetropolitan areas were early adopters. Although NIV use increased between 2006 and 2008, the utilization of NIV remained low (16 percent in 2008).

The researchers asked why, given its demonstrated efficacy (both in their study and earlier studies), NIV has not been more widely adopted. Previous surveys have identified several reasons, including lack of physician knowledge, insufficient respiratory therapist training, inadequate equipment, and the time required to set up NIV. One incentive to promote NIV use in clinical practice is the cost-effectiveness of NIV compared with usual treatment, mainly resulting from less use of the ICU.

The researchers believe that increasing the use of NIV as recommended in the guidelines may help reduce COPD mortality. This study was supported by AHRQ (HS20722).

See "Comparative effectiveness of noninvasive ventilation vs invasive mechanical ventilation in chronic obstructive pulmonary disease patients with acute respiratory failure," by Chu-Lin Tsai, M.D., Wen-Ya Lee, M.S., George L. Delclos, M.D., and others in the April 2013 *Journal of Hospital Medicine* 8(4), pp. 165-172. ■ *MWS*

Cholesterol increases when methotrexate is given to patients with early rheumatoid arthritis

Patients with rheumatoid arthritis (RA) are at high risk of coronary heart disease (CHD). In addition, their lifespan is reduced by 5 to 10 years compared to that of patients without RA. Inflammation is thought to be a major contributor to the CHD risk in RA. Recently, researchers investigated three different treatment regimens containing methotrexate (MTX) to see if they contribute to changes in cholesterol levels and increase the risk for CHD. They found that all three regimens increased average cholesterol levels significantly after just 24 weeks of therapy.

Patients with early RA were randomized into three treatment groups. One group received MTX plus etanercept, another RA medication. A second group received triple therapy consisting of MTX, sulfasalazine, and hydroxychloroquine. The final group received aggressively titrated MTX therapy alone. Total cholesterol, as well as LDL-cholesterol, HDL-cholesterol, and triglycerides were measured at baseline and again at 24 weeks.

At 24 weeks, total cholesterol levels increased an average of 56.8, 53, and 57.3 mg/dl in the 3 groups, respectively. Although increases in mean LDL-cholesterol (31.4, 28.7, and 30 mg/dl, respectively) exceeded those in mean HDL-cholesterol, (19.3, 22.3, 20.6 mg/dl, respectively), the net result was that the ratio of total cholesterol to HDL-cholesterol decreased

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Rheumatoid arthritis

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at 24 weeks. These increases in lipoproteins were also associated with decreases in C-reactive protein, a marker of inflammation. According to the researchers, physicians need to be cognizant of optimizing cardiovascular risk factors such as lipoproteins in RA patients, particularly when they start any of these therapeutic regimens. The study was supported in part by AHRQ (HS18517).

See "Changes in lipoproteins associated with methotrexate or combination therapy in early rheumatoid arthritis," by Iris Navarro-Millán, M.D., Christina Charles-Scoeman, M.D., M.S., Shuo Yang, M.S., and others in the June 2013 *Arthritis & Rheumatism* 65(6), pp. 1430-1438. ■ *KB*

Tumor necrosis factor inhibitors not shown to raise short-term cancer risk of patients with chronic inflammatory disorders

Biologicals designed to inhibit tumor necrosis factor (TNF) activity have become important components of the treatment of inflammatory disorders, particularly rheumatoid arthritis, inflammatory bowel disease (Crohn's disease and ulcerative colitis), psoriasis, psoriatic arthritis, and ankylosing spondylitis. TNF inhibitors (e.g., etanercept, infliximab, and adalimumab) neutralize the cytokine TNF, which has multiple roles in the body and can destroy cells of certain cancers. Some studies have suggested that treatment with TNF inhibitors might increase the risk of cancer among patients with these inflammatory diseases. However, other studies have found no such increase with TNF-inhibitor therapy.

A new comparative safety study did not find that short-term risk of common cancers was any higher among patients treated with TNF inhibitors than among patients receiving other common therapies for these immune-mediated chronic inflammatory diseases. Commonly used therapies varied depending on the condition being treated but included hydroxychloroquine, methotrexate, topical steroids and retinoids, and ulraviolet light.

The study drew on national Medicaid and Medicare databases, pharmaceutical assistance programs in New Jersey and Pennsylvania, and data from Kaiser Permanente Northern California. The analysis included 29,555 patients with rheumatoid arthritis, 6,357 patients with inflammatory bowel disease, 1,298 patients with psoriasis, and 2,498 patients with psoriatic arthritis. This study was funded by AHRQ (HS17919).

See "Tumor necrosis factor inhibitor therapy and cancer risk in chronic immune-mediated diseases," by Kevin Haynes, Pharm.D., Timothy Beukelman, M.D., Jeffrey R. Curtis, M.D., and others in *Arthritis & Rheumatism* 65(1), pp. 48-58, 2013. ■ *MWS*

Study compares rate versus rhythm control in management of atrial fibrillation

Atrial fibrillation (AF), an irregular heart rhythm, represents the most common dysrhythmia in the United States, and contributes significantly to health care expenditures. Management of AF varies and may include medical and interventional therapies to maintain sinus rhythm ("rhythm control"), as well as strategies to control the ventricular rate. The appropriate criteria for selecting a management strategy in patients with AF have not been well-defined. Therefore, it is largely left to providers to determine which patients are suitable for rate control alone versus the combination of rate plus rhythm control. A new study comparing rate versus rhythm control for management of AF in clinical practice found that, among 10,061 outpatients with AF, over two-thirds were managed with a rate-control-only strategy. The rate-control patients tended to be older, to have more coexisting medical illnesses, and were more likely to be cognitively impaired.

Longstanding persistent AF and primary care management were also associated with rate control management. Patients managed with rhythm control had lower resting heart rates, and generally received less aggressive strategies to prevent blood clots. For example, they were more likely to be taking aspirin alone and less likely to be treated with oral anticoagulation medication such as warfarin. Systemic anticoagulation was prescribed for 69 percent (2,219) of rhythm-control patients compared to 79 percent (5,548) of rate-control patients. Regardless of treatment strategy, there remains room for

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Atrial fibrillation

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improvement in the management of patients with AF, suggest the study authors.Their study was supported by AHRQ (HS21092).

See "Rate versus rhythm control for management of atrial fibrillation in clinical practice: Results from the Outcomes Registry for Better Informed Treatment of Atrial Fibrillation (ORBIT-AF) registry," by Benjamin A. Steinberg, M.D., DaJuanicia N. Holmes, M.S., Michael D. Ezekowitz, M.D., and others in the *American Heart Journal* 165, pp. 622-629, 2013. ■ *MWS*

New model of primary care for patients with multiple chronic conditions shows mixed results

For patients with two or more chronic conditions, health care is often fragmented, low quality, inefficient, and unsatisfactory to them and their clinicians. These patients are also at high risk of generating high health care expenditures.

A 32-month test of Guided Care, a new model of comprehensive interdisciplinary care for patients with multiple chronic conditions, did not significantly improve primary care patients' functional health, but it was associated with higher patient ratings of the quality of care. Also, access to telephone advice improved and patients' use of home health care declined. Participating in the test were 904 high-risk older patients in 8 primary care practices.

The Guided Care model of comprehensive interdisciplinary care comprises primary care-based care management, transitional care, and support for self-management and family caregiving.

In Guided Care, a registered nurse works with 2 to 5 physicians in a primary care practice to provide 50-60 high-risk, multi-morbid patients with eight services: home-based assessment of patients' needs and goals, evidence-based care planning, proactive monitoring, care coordination, transitional care, coaching for self-management, caregiver support, and access to community-based services

The researchers suggest that several factors may underlie the observed lack of significant effect on patients' functional health and use of some health services: (1) inadequate potency of the initial version of Guided Care, (2) the considerable heterogeneity in the implementation of the model by the individual nurses and physicians in the 7 different intervention teams, and (3) inadequate statistical power to draw inferences about the intervention's effects on health care use.

The potential for Guided Care to control the use and costs of health care remains uncertain. The authors note that the significant savings from reductions in the use of home health care would help to offset the costs of the intervention. However, concomitant reductions in the use of hospitals and skilled nursing facilities would probably be necessary for the model to show cost neutrality or reduce high-risk patients' net health care costs. This study was supported by AHRQ (HS14580).

See "A matched-pair cluster-randomized trial of guided care for high-risk older patients," by Chad Boult, M.D., Bruce Leff, M.D., Cynthia M. Boyd, M.D., and others in *Journal of General Internal Medicine* 28(5), pp. 612-621, 2013. *MWS*

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Emergency department patients with heart attack, respiratory conditions, or sepsis at risk of unplanned transfer to the ICU

Emergency department (ED) patients who are admitted to the hospital and require unplanned transfer to the intensive care unit (ICU) within 24 hours of arrival on the ward have previously been found to have higher case-fatality rates than do patients admitted directly to the ICU from the ED. It is possible that with better recognition and intervention in the ED, a portion of these unplanned ICU transfers and their subsequent adverse outcomes could be prevented, suggest researchers in a new study. They assessed 4,252 patients who were admitted to the ICU from the ED within 24 hours of arriving at the ED. The investigators found that ED patients admitted with respiratory conditions, heart attack or sepsis were at relatively high risk of unplanned ICU transfer.

In their evaluation of 178,315 ED non-ICU admissions to 13 Kaiser Permanente Northern California community hospitals, researchers found an average unplanned ICU transfer rate of 1 in 42. One in 30 ED patients admitted for pneumonia, and 1 in 33 admitted for chronic obstructive pulmonary disease were transferred to the ICU within 24 hours. Although less frequent than hospitalizations for respiratory conditions, patients admitted with sepsis were at the highest risk of unplanned ICU transfer (1 in 17 ED non-ICU hospitalizations). Both heart attack and stroke patients also had high risks of unplanned ICU transfer.

Patients with the aforementioned conditions might benefit from better triage from the ED, earlier intervention, or closer monitoring to prevent acute worsening of their condition. However, since the case-fatality rate with unplanned ICU transfer of patients hospitalized for sepsis, heart attack, or stroke was no higher than with their direct admission to the ICU, the researchers believed that quality-improvement efforts should be targeted towards those patients

with respiratory conditions such as pneumonia and COPD. This study was supported by AHRQ (T32 HS00028, HS19181, HS18480).

See "Risk factors for unplanned transfer to intensive care within 24 of admission from the emergency department in an integrated healthcare system," by M. Kit Delgado, M.D., Vincent Liu, M.D., Jesse M. Pines, M.D., and others in *Journal of Hospital Medicine* 8(1), pp. 13-19, 2013. ■ *MWS*

Simulation training in the hospital unit improves the quality of emergency response teams

High-reliability emergency response teams respond to patients who are early identified as developing impending cardiorespiratory failure inside the hospital (a code blue). These teams are used in pediatric hospitals, such as Cincinnati Children's Hospital Medical Center (CCHMC). Their teams have been associated with significantly decreased emergency codes outside critical care areas and a reduction in hospital mortality.

Training such teams takes work. Recently, CCHMC described their use of in situ simulation training to improve the delivery of quality care. The researchers found that by performing these simulations in the clinical unit, knowledge gaps and latent safety threats were identified. In addition, teamwork was reinforced among the members.

Simulations were unannounced and performed twice per month in units on a rotating basis and schedule. The hospital conducted 64 in situ simulations on all shifts and units during a 21-month period. Actual resuscitation equipment carts were used—the same ones counted on during true code situations. Each simulation was 10 minutes in length followed by a 10-minute debriefing.

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Emergency response teams

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A total of 134 latent safety threats (threats to patient safety that can happen at any time and are earlier unrecognized by staff) and knowledge gaps were identified from the simulations. Such threats are considered accidents waiting to happen. This amounted to 2.1 latent safety threats per each simulation. For example, 3 resuscitation equipment carts were located in non-clinical areas and not readily available. They are now stocked with portable suction and oxygen cylinders. Laryngeal mask airways have also been added to all carts. In another simulation, a nurse incorrectly diluted amiodarone, a drug used to treat heart rhythm problems. This resulted in different package labeling, adding a backup clinical pharmacist to the code team, and independent doublechecking of all code medications. Finally, role assignments were standardized and clarified by appointing a team nurse leader and assigning tasks to different members. Hospital residents now carry a specific code pager labeled with one particular role assignment, such as chest compressions. According to the researchers, in-situ simulation is a powerful technique to identify system weaknesses and promote successful solutions. The study was supported by AHRQ (HS16615).

See "High-reliability emergency response teams in the hospital: Improving quality and safety using in-situ simulation training," by Derek S. Wheeler, M.D., M.M.M., Gary Geis, M.D., Elizabeth H. Mack, M.D., and others, in *BMJ Quality & Safety* 22, pp. 507-514, 2013. ■ *KB*

Health Insurance

Children gain health insurance while parents lose

The Children's Health Insurance Program (CHIP), established in 1997, increased Federal and State funding for children's public health insurance. A new study selected a sample of Oregon parents who participated in a statewide survey to better understand coverage access for Oregon children and conducted 53 interviews with them. The interviews found that a loss of coverage by parents led to negative consequences for the family, such as delayed care and the inability to stay healthy. This in turn interfered with parents' ability to provide for their children. Sick parents who were unable to work did not have enough money to pay for rent, utilities, or food. Parental illness also contributed to an inability to spend time with children in leisure activities.

To investigate if the Oregon findings could be replicated nationally, the study relied on nationally representative data from the Medical Expenditure Panel Survey (MEPS), an AHRQ-funded annual survey. Nationally, the percentage of children uninsured all year decreased from 9.6 percent in 1998 to 6.1 percent in 2009. However, during the same period, the percentage of parents uninsured all year rose from 13.6 percent to 17.1 percent.

The findings from this mixed-methods study highlight an alarming downward trend in health insurance coverage for U.S. parents. They also suggest the need for continued monitoring of upcoming policy changes to access to health insurance for children and their parents.

See "Recent health insurance trends for U.S. families: Children gain while parents lose," by Jennifer E. DeVoe, M.D., D.Phil., Carrie J. Tillotson, M.P.H., Heather Angier, M.P.H., and Lorraine S. Wallace, Ph.D., in the July 2013 *Journal of Maternal and Child Health* [Epub]. *MWS*

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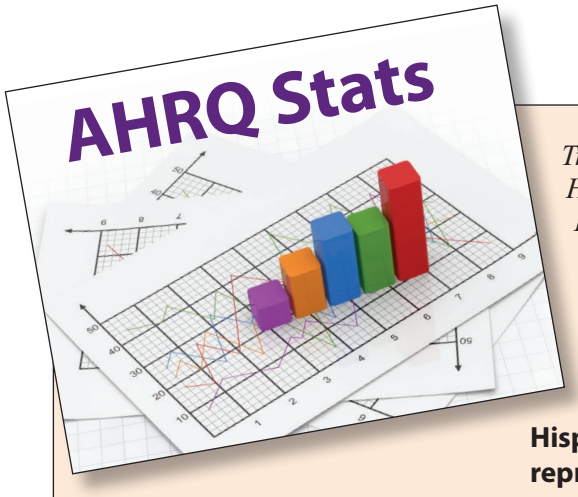

One-third increase in hospitalizations for septicemia

In a study of seven geographically diverse states, AHRQ found a 32 percent increase in the rate of hospitalizations for septicemia (blood infection) between 2005 and 2010. (Source: AHRQ Healthcare Cost and Utilization Project Statistical Brief #161: *Trends in Septicemia Hospitalizations and Readmissions in Selected HCUP States, 2005 and 2010* available at www.hcup-us.ahrq.gov/reports/statbriefs/sb161.jsp).

Hispanics disproportionately represented among long-term uninsured

Hispanics were disproportionately represented among the long-term uninsured in 2008–2011. While Hispanics represented 18.2 percent of the population under age 65, they comprised 41.5 percent of the long-term uninsured for the period. (Source: AHRQ Medical Expenditure Panel Survey Statistical Brief #424: *The Long-Term Uninsured in America, 2008–2011 (Selected Intervals): Estimates for the U.S. Civilian Noninstitutionalized Population Under Age 65*, http://meps.ahrq.gov/mepsweb/data_files/publications/st424/stat424.shtml).

Steep hospitalization rate for acute kidney failure

Between 1997 and 2011, the hospitalization rate for acute kidney failure had the steepest growth across all medical conditions, increasing by 346 percent. (Source: AHRQ Healthcare Cost and Utilization Project Statistical Brief #162: *Most Frequent Conditions in U.S. Hospitals, 2011*, www.hcup-us.ahrq.gov/reports/statbriefs/sb162.jsp).

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Women's Health

Simulation study evaluates the trade-offs in lifetime risks and benefits of management strategies for ductal carcinoma in situ of the breast

The incidence of ductal carcinoma in situ (DCIS), when cancer remains in the breast duct and has not yet invaded breast tissue, has risen over the past 25 years. Yet, the optimal treatment is uncertain. The study examined six treatment options available to these women: mastectomy with reconstruction, mastectomy without reconstruction, lumpectomy alone, lumpectomy with radiation, lumpectomy with radiation and tamoxifen, lumpectomy with tamoxifen. The researchers used a disease-simulation model based on published data to determine disease outcomes and treatment tradeoffs for these six treatments. It found that all six treatments had overall survival benefits within 1 year.

The model simulated 1 million women receiving a diagnosis of DCIS at 45 years of age. Each woman was considered disease-free after initial treatment and then was considered at risk for a recurrence of cancer in the same breast, the development of a new primary cancer in the other breast, or death from non-breast cancer causes. Those with recurrences would receive a second treatment of a different kind.

The lifetime percentage rate of women with native breast preservation was 84 percent for lumpectomy alone and 78 percent for lumpectomy with radiation.

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Ductal carcinoma in situ

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Mastectomy provided the greatest number of disease-free years per patient compared to lumpectomy (9.1 years). The greatest invasive disease-free survival was found for mastectomy and lumpectomy with radiation and tamoxifen. Both yielded an additional 5 years without invasive breast cancer compared to lumpectomy alone. Lumpectomy with radiation and tamoxifen and mastectomy were associated with a 12-month improvement in overall survival compared to lumpectomy alone. When radiation was added to lumpectomy, it only increased survival by 6 months. Out of the 6 treatments, lumpectomy alone had the highest likelihood of death from breast cancer. The lowest likelihood was found for mastectomy and lumpectomy with radiation and tamoxifen. In the end, women need to understand the tradeoffs of each treatment, its risks and benefits, and how they relate to their own values, suggest the researchers. Their study was supported by AHRQ (Contract No. 290-05-00161).

See "Modeling the effectiveness of initial management strategies for ductal carcinoma in situ," by Djøra I. Soeteman, Ph.D., Natasha K. Stout, Ph.D., Elissa M. Ozanne, Ph.D., and others in the June 5, 2013 *Journal of the National Cancer Institute* 105(11), pp. 774-781. ■ *KB*

Elderly Health/Long-Term Care

Very few nursing homes are accredited by the Commission on Accreditation of Rehabilitation Facilities

In 2010, there were 246 nursing homes accredited by the Commission on Accreditation of Rehabilitation Facilities (CARF), representing just 2 percent of all homes. CARF also accredits medical rehabilitation programs and dementia and stroke care specialty programs. A new study found that CARF-accredited homes had better care quality than non-accredited homes for short-stay quality measures, such as percent of residents who got flu shots during flu season.

The 246 CARF-accredited nursing homes were compared with 15,393 non-accredited homes on the 7 quality indicators used by CARF. The total nursing homes compared represents 97 percent of all nursing homes in the United States in 2010. In addition to flu vaccination, the care quality indicators included the percent of short-stay residents given the pneumonia vaccine, residents who have delirium, those who have moderate to severe pain, and those who have pressure sores. The other 2 measures were a 5-star quality measure score and 5-star health inspection score. These last 2 criteria provide an overall assessment of nursing home quality.

CARF-accredited nursing homes differed significantly from the other homes when it came to national averages for 6 of the 7 quality measures. The only exception was no difference in the percent of short-stay residents who had delirium. There were also differences in various internal, external, and organizational factors in CARF-accredited nursing homes compared to non-accredited ones. For example, the number of nurse aide staff was significantly higher in CARF-accredited homes. These homes were also less likely to be for profit (4 vs. 63 percent) and to admit Medicaid patients (21 vs. 63 percent). The researchers point out that lack of financial resources prevents many nursing homes from seeking voluntary CARF accreditation. They recommend that financial incentives be provided to accredited facilities, similar to what is being done in Ontario, Canada. The study was supported in part by AHRQ (HS13983).

See "Impact of voluntary accreditation on short-stay rehabilitative measures in U.S. nursing homes," by Laura M. Wagner, Ph.D., R.N., Shawna M. McDonald, M.Sc., and Nicholas G. Castle, Ph.D., in *Rehabilitation Nursing* 38, pp. 167-177, 2013. ■ *KB*

Primary care physicians slower to adopt new second-generation antipsychotic drugs than psychiatrists

Overall, physicians waited at least 2 years after approval by the U.S. Food and Drug Administration to adopt second-generation antipsychotic drugs. However, adoption of the drugs was much faster among psychiatrists, according to a new study. Early research had indicated that second–generation antipsychotic drugs, although more costly than prior antipsychotics, were more efficacious and less likely to cause side effects, leading these drugs to become the first-line treatments for psychotic disorders. More recent research has questioned these conclusions, and thus the cost-effectiveness of using the newer drugs as first-line treatments.

In the new study, Julie M. Donohue, Ph.D., of the University of Pittsburgh, and her colleagues found that the speed of drug adoption was slowest for the 80 percent of physicians who prescribed antipsychotic drugs who were primary care physicians (those in internal medicine, family practice, or pediatrics), somewhat faster for the 4 percent who were neurologists, and fastest for the 16 percent who were psychiatrists.

Furthermore, physicians who prescribed a high volume of antipsychotic drugs adopted the second-generation drugs much faster than physicians who prescribed a low volume of such drugs. Finally, psychiatrists prescribed a greater variety of antipsychotic drugs than did primary care physicians, neurologists, or pediatricians (a median of six, two, and one different drug, respectively). The findings were based on data from a commercial database on the prescription of second-generation antipsychotic drugs by 30,369 physicians who prescribed any antipsychotic drug from January 1996 through September 2008. The study was funded in part by AHRQ (HS17695).

More details are in "How quickly do physicians adopt new drugs? The case of second generation antipsychotics," by Haiden A. Huskamp, Ph.D., A. James O'Malley, Ph.D., Marcela Horvitz-Lennon, M.D., M.P.H., and others in the April 2013 *Psychiatric Services* 64(4), pp. 324-330. *DIL*

Clozapine's superior effectiveness relative to other antipsychotic drugs is confirmed

The superior effectiveness of the antipsychotic drug clozapine in the treatment of schizophrenia, demonstrated in clinical trials, is not influenced by the patient's race or ethnicity, according to a new study. In a study of black, Latino, and white Florida residents with schizophrenia insured by Medicaid, of 20,122 persons prescribed an antipsychotic drug, the proportion of blacks and Latinos taking clozapine (2.3 percent and 2.1 percent, respectively) was lower than that of whites (5.9 percent).

Julie M. Donohue, Ph.D., of the University of Pittsburgh's Graduate School of Public Health, Marcela Horvitz-Lennon, of the RAND Corporation, and colleagues compared 749 propensity score-matched sets of clozapine users and users of other antipsychotics. They found that clozapine users, regardless of race or ethnicity, had a 55 percent lower risk of discontinuing their medication. Moroever, the time to discontinuation of antipsychotic medication was longer for clozapine users than users of other antipsychotic drugs, regardless of race or ethnicity (clozapine median days to discontinuation: 1,422 for blacks, 1,659 for Latinos, 1,228 for whites; other antipsychotics median days to discontinuation: 459 for

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Clozapine

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blacks, 566 for Latinos, 639 for whites). The researchers note that their findings highlight the need for efforts to boost clozapine use, particularly among minority groups.

The study was funded in part by AHRQ (HS17695).

More details are in "The effect of race–ethnicity on the comparative effectiveness of clozapine among Medicaid beneficiaries," by Marcela Horvitz-Lennon, M.D., M.P.H., Dr. Donohue, Judith R. Lave, Ph.D., Margarita Alegria, Ph.D., and Sharon-Lise T. Normand, Ph.D., in *Psychiatric Services* 64(3), pp. 230-237, 2013. ■ *DIL*

Some meditation programs beneficial for psychological stress

A new research review from AHRQ's Effective Health Care Program finds that meditation programs—particularly mindfulness programs designed to focus attention and awareness on inner and outer experiences with acceptance, patience and compassion—are beneficial for reducing psychological stress including anxiety, depression, and pain. However, there was insufficient evidence on the effect of meditation programs on stress-related behavioral outcomes such as positive mood, attention, substance use, eating, sleep, and weight. Findings from the report were published January 6 in *JAMA Internal Medicine*.

Meditation, a mind-body method, employs a variety of techniques designed to facilitate the mind's capacity to affect bodily function and symptoms. A national survey in 2008 found that the number of people meditating is increasing, with approximately 10 percent of the population having some experience with meditation. No evidence was found to suggest that meditation programs were superior to one specific therapy, such as exercise, yoga, progressive muscle relaxation, cognitive behavioral therapy, or medications. Stronger study designs are needed

to determine the effects of meditation programs to improve the positive dimensions of mental health, as well as stress-related behavioral outcomes. These findings can be found in the research review, *Meditation Programs for Psychological Stress and Well-Being*, which can be accessed at http://go.usa.gov/ZMVP.

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Combined clinician- and family-focused interventions are most effective in increasing HPV vaccination rates

Despite proven health benefits, human papillomavirus (HPV) vaccination rates to prevent cervical cancer, routinely given to adolescent women, are among the lowest of all routine immunizations. A new study on the effectiveness of targeting automated decision support to families and/or clinicians found that a combined clinician- and family-focused decision support intervention was most effective in improving vaccination rates and shortening the time to vaccine receipt for HPV doses 1, 2, and 3. The clinician-focused intervention was more effective for HPV dose 1, while the family-focused intervention was more effective for HPV doses 2 and 3. The combined intervention increased the vaccination rate from 16 percent to 25 percent for dose 1, from 65 percent to 73 percent for dose 2, and from 63 percent to 76 percent for dose 3. The combined intervention significantly accelerated vaccination by 151, 68, and 93 days, respectively.

The incremental costs per each additional girl vaccinated for the single most effective intervention (clinician-focused for HPV #1, family-focused for HPV #2 and #3) for each HPV dose were low, ranging from $6 to $10. All costs, including for the combined intervention, were substantially lower than for an immunization navigator program designed to bolster adolescent vaccination as well as preventive care, which cost $465 per additional adolescent fully vaccinated.

The study included 22 pediatric practices and 22,486 adolescent girls. The clinician decision support consisted of education (a 1-hour presentation either in person or online), electronic health record-based alerts, and audit and feedback. The family-focused decision support consisted of educational telephone calls. This study was supported by AHRQ (Contract No. 290-07-10013).

See "Effectiveness of decision support for families, clinicians, or both on HPV vaccine receipt," by Alexander G. Fiks, M.D., Robert W. Grundmeier, M.D., Stephanie Mayne, M.H.S., and others in *Pediatrics* 131, pp. 1114-1124, 2013. ■ *MWS*

Personalized diet and physical activity counseling plus environmental changes is key to preventing weight gain

Preventing obesity involves a variety of interventions, ideally in environments where they can be effective. Workplaces and colleges are two settings where some of these interventions are carried out. A recent review of studies found moderate strength of evidence that interventions in these locations can prevent weight gain over a 12-month period. Critical to the success of these interventions is the inclusion of personalized diet and physical activity counseling, as well as modifications to the physical environment that support and promote these healthy lifestyle changes.

The review included 7 workplace and 2 college-based studies. The studies used combinations of strategies: self-management, diet, physical activity, and environmental changes, and measured their influence on weight, body mass index (BMI), or waist circumference after 12 months or more. Workplaces included locations such as the military, a chemical company, and hospitals.

The two college-based interventions were evaluated by randomized trials at different universities.

All of the interventions studied used a combination of strategies and ranged from 3 to 24 months. The

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Weight gain

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chemical company intervention compared site-specific environmental changes designed to promote healthy eating and physical activity with a health promotion program already in place. The hospital study evaluated a combined individual and environmental program that included promotional materials, group events, and individual education. At the universities, one study evaluated a small-group intervention while the other evaluated a 4-month college course covering nutritional science, exercise, physiology, and metabolism.

Overall, the combination interventions prevented a weight gain of 0.5 kg or more over 12 months. However, the programs' effect on preventing BMI gainor increases in waist circumference was inconsistent. Several strategies were identified that led to a statistically significant difference in preventing weight gain. One of these was a workplace program that combined diet, physical activity, and environmental components. Another one used an Internet-based diet and exercise counseling program at work. The seminar-based self-management, diet, and physical activity counseling program for college students also proved successful at preventing weight gain. The study was supported by AHRQ (Contract No. 290-07-10061).

See "Strategies to prevent weight gain in the workplace and college settings: A systematic review," by Kimberly Gudzune, M.D., M.P.H., Susan Hutfless, Ph.D., Nisa Maruthur, M.D., M.H.S., and others in the March 22, 2013 *Preventive Medicine* 57(4), pp. 268-277. ■ *KB*

Comparative Effectiveness Research

New review evaluates BNP and NT-proBNP biomarkers in heart failure diagnosis

A new research review from AHRQ finds that in both emergency and primary care settings, the biomarkers B-type natriuretic peptide (BNP) and N-terminal proBNP (NT-proBNP) have good diagnostic performance to rule out, but lesser performance to rule in, the diagnosis of heart failure because of a high sensitivity and low specificity of the test. The review, *Use of Natriuretic Peptide Measurement in the Management of Heart Failure*, finds that in patients with decompensated or chronic stable heart failure, higher levels of BNP and NT-proBNP are associated with a greater risk of morbidity and mortality. The majority of studies assessing prognosis showed associations between BNP and NT-proBNP and mortality, morbidity, and outcomes across different time intervals in patients with decompensated and chronic stable heart failure. However, according to the review, the clinical utility of using multifactor prognostic scoring needs to be designed and evaluated before it becomes an established clinical tool.

You can access the review at http://go.usa.gov/ZMdT. ■

Treatment approaches for chronic venous ulcers reviewed

There is a general lack of conclusive evidence on the benefits and harms of advanced wound dressings, systemic antibiotics, and surgical interventions in the treatment of venous leg ulcers lasting six or more weeks in patients with preexisting venous disease, according to a new AHRQ review of the topic. However, certain conclusions can be drawn from this research.

According to the review, antimicrobial dressings provide an advantage in improved healing (moderate strength of evidence), but there is insufficient evidence about the effectiveness of antimicrobial dressings compared with each other or with compression alone. Collagen dressings may improve the proportion of ulcers healed compared with compression alone (low strength of evidence), and allogenic bilayered human skin equivalents may promote more rapid healing (moderate strength of evidence), particularly among patients with long-standing venous leg ulcers, although this treatment did not affect post-treatment recurrence.

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Chronic venous ulcers

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The review finds insufficient evidence available regarding the routine use of antibiotics and the effectiveness of advanced wound dressings on longer-term outcomes, including quality of life and pain.

When added to compression, there is a moderate and low strength of evidence, respectively, that superficial vein surgery and surgical hemodynamic correction of reflux may lower the risk of ulcer recurrence, though neither improves healing. In contrast, subfascial endoscopic perforator vein surgery does not improve the rate of healing or risk of recurrence of chronic venous leg ulcers (high strength of evidence).

Overall, insufficient evidence exists to determine the comparative benefits and harms of different surgical procedures for chronic venous leg ulcers.

Additional well-designed studies with adequate numbers of patients and standardized definitions are needed to determine the clinical impact of these treatments compared with the use of venous compression alone.

These findings are available in the research review *Chronic Venous Ulcers: A Comparative Effectiveness Review of Treatment Modalities* available at http://go.usa.gov/ZMdA. ■

Intensity-modulated radiotherapy no better than less costly conformal radiotherapy for treating prostate cancer after surgery

Is intensity-modulated radiotherapy (IMRT) more effective in treating men with prostate cancer following radical prostatectomy than the somewhat older, and less costly treatment of conformal radiotherapy (CRT)? A new study suggests the answer is "no." Prostate cancer is the most common malignancy in American men, with diagnosis of 240,000 new cases and 30,000 deaths from the cancer each year.

Many men who choose to have a radical prostatectomy will require radiation therapy afterwards, either to prevent a recurrence or to treat recurrent cancer. Although IMRT reduces the amount of radiation experienced by organs adjacent to the prostate, such as the bladder and rectum, it requires more complicated treatment planning than conventional CRT, and is reimbursed by Medicare at a higher rate. A previous study, funded by AHRQ, showed that for patients receiving radiation therapy without prostatectomy, IMRT was associated with lower gastrointestinal morbidity and hip fractures compared to CRT.

In the current study, the researchers from the University of North Carolina at Chapel Hill compared outcomes for 457 men who underwent IMRT with those for 557 men who underwent CRT. They found that the proportion of patients who underwent IMRT after prostatectomy increased from zero in 2000 to 82.1 percent by 2009.

Despite this dramatic increase in use of the newer form of radiotherapy, none of the rates of long-term morbidity with IMRT differed significantly from those for patients who underwent CRT. This included the rates of gastrointestinal morbidity, urinary incontinence, other urinary morbidity, or erectile dysfunction. Furthermore, the two types of radiotherapy did not differ significantly in the likelihood of subsequent treatment for recurrent prostate cancer.

The findings were based on data from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER)–Medicare-linked database of patients who received radiation therapy between 2002 and 2007. The study was funded by AHRQ (Contract No. 290-2005-0040I).

More details are in "Comparative effectiveness of intensity-modulated radiotherapy and conventional conformal radiotherapy in the treatment of prostate cancer after radical prostatectomy," by Gregg H. Goldin, M.D., Nathan C. Sheets, M.D., Anne-Marie Meyer, Ph.D., and others in the June 24, 2013 *JAMA Internal Medicine* 173(12), pp. 1136-1143. *DIL*

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AHRQ report shows how health information technology can improve care quality and delivery

Appropriate implementation and use of health IT systems such as electronic health records, personal health records, and health information exchange systems can support the delivery of ambulatory care, according to a new AHRQ report. *Findings and Lessons from the AHRQ Ambulatory Safety and Quality Program* documents the findings of more than 50 research projects that investigated how health IT applications can improve quality, enable quality measurement, enhance care delivery for people living with complex care needs, and enhance patient-centered care. Multiple studies showed positive impacts on process, intermediate, health, and economic outcomes.

New AHRQ toolkit designed to improve safety of fragile newborns

A new guide, *Transitioning Newborns from NICU to Home: A Resource Toolkit*, is available to help improve the safety of infants born preterm or with complex congenital conditions as they transition from the neonatal intensive care unit (NICU) to their home. Funded by AHRQ, the toolkit features information on how hospitals can create programs in which a health coach serves as a teacher and facilitator who encourages open communication with the parents or caregivers to identify their needs and concerns and facilitate followup medical care for the infant by primary care providers.

Using the toolkit, (www.ahrq.gov/professionals/systems/hospital/nicu_toolkit) the health coach can customize a broad range of information for each family. Included are approximately 30 fact sheets, directed to either the clinician or the infant's family, on topics such as managing breathing and feeding problems.

HCUP Releases 2011 Nationwide Emergency Department Sample

AHRQ's Healthcare Cost and Utilization Project (HCUP) has released its 2011 National Emergency Department Sample (NEDS). The NEDS is the largest all-payer emergency department (ED) database in the United States. The NEDS was created to enable analyses of ED use patterns and support public health professionals, administrators, policymakers, and clinicians in their understanding and decisionmaking regarding this critical source of health care.

Constructed using records from both the HCUP State Emergency Department Databases and the State Inpatient Databases, the 2011 NEDS contains data from nearly 29 million ED visits and encompasses all encounter data from more than 922 hospital-based EDs in 30 States. It approximates a 20-percent stratified sample of EDs from community hospitals. Weights are provided to calculate national estimates pertaining to the 131 million ED visits that took place in 2011.

The NEDS has many research applications, since it contains information on hospital and patient characteristics, geographic region, and the nature of the ED visits. The database includes information on all visits to the ED, including persons covered by Medicare, Medicaid, private insurance, and the uninsured. More information about the NEDS can be found on the HCUP-US Web site at http://hcup-us.ahrq.gov/nedsoverview.jsp.

New guide available for implementing N-of-1 trials

A new publication from AHRQ's Effective Health Care Program, *Design and Implementation of N-of-1 Trials: A User's Guide*, is an informational resource to researchers, health care providers, patients, and other stakeholders, to improve understanding of n-of-1 trials and strengthen the quality of evidence that is generated when an n-of-1 trial is conducted. The aim of this user's guide is to identify key decisions and tradeoffs in the design and implementation of n-of-1 trials, particularly when used for patient-centered outcomes research. This guide explains how to apply n-of-1 trials in a sustainable way, outlining indications, potential benefits, and barriers; human subject issues; financial considerations; statistical design and analysis factors; recommended information technology infrastructure for implementation; and training and engagement of providers and patients. Each chapter also includes a checklist to help clinicians and investigators determine if key considerations are met. Each of the six chapters can be downloaded for free from the Effective Health Care Program Web site at www.effectivehealthcare.ahrq.gov.

Research Briefs

Abrahamson, K., Davila, H., Mueller, C., and others. (2013). "Examining the lived experience of nursing home quality improvement. The case of a multifacility falls reduction project." (AHRQ grant HS18464). *Journal of Gerontological Nursing* 39(9), pp. 24-30.
The researchers conducted a case study of a falls reduction project to better understand the lived experience of nursing home quality improvement. Through interviews with 37 nursing home employees of 13 different facilities participating in the project, they found that the project resulted in organizational changes that were non-linear and emergent.

Almasalha, F., Xu, D., Keenan, G.M., and others. (2013, February). "Data mining nursing care plans of end-of-life patients: A study to improve healthcare decisionmaking." (AHRQ grant HS05403). *International Journal of Nursing Knowledge* 24(1), pp. 15-24.
The purpose of this study is to reveal hidden patterns and knowledge present in nursing care information documented with standardized nursing terminologies on end-of-life (EOL) hospitalized patients. The study involved the use of data mining techniques applied to nursing care plan data collected on 569 EOL patients.

Baur, C., and Brach, C. (2013). "Pharmacy research on health literacy can contribute to national goals and health care system improvements." *Research in Social and Administrative Pharmacy* 9, pp. 498-502. Reprints (AHRQ Publication No. 14-R005) are available from AHRQ.*
This editorial introduces a special issue focused on the dissemination, translation, and evaluation of health literacy tools in pharmacy practice. The articles in the special issue pay special attention to providing accessible, accurate, and actionable health information and health literate health care services.

Bilimoria, K.Y., Chung, J., Haur, E.R., and others. (2013, October). "Evaluation of surveillance bias and the validity of the venous thromboembolism quality measure." (AHRQ grants HS21857, HS17952). *Journal of the American Medical Association* 310(14), pp. 1482-1489.
The researchers performed three analyses to examine the effect of surveillance bias on the validity of venous thromboembolism (VTE) as a quality measure. Their findings suggest that such a bias does influence the validity of VTE measurement. The publicly reported PSI-12 VTE outcome measure reflects the intensity of VTE imaging rather than the actual quality of care.

Branas, C.C., Wolff, C.S., Williams, J., and others. (2013). "Simulating changes to emergency care resources to compare system effectiveness." (AHRQ grant HS10914). *Journal of Clinical Epidemiology* 66, pp. S57-S64.
This study was an optimization analysis of the location of trauma centers (TCs), helicopter depots (HDs) and severely injured patients in need of time-critical care in select U.S. States. It found that optimal changes to TCs produced greater increases in access to care than optimal changes to HDs, although these results varied across States.

Buys, D.R., Flood, K.L., Real, K. (2013). "Mealtime assistance for hospitalized older adults." (AHRQ grant T32 HS13852). *Journal of Gerontological Nursing* 39(9), pp. 18-22.
This article reports the implementation of the Support for and Promotion Of Optimal Nutritional Status (SPOONS) volunteer assistance program. It found an estimated cost savings of $11.94 per encounter had the service been provided by a patient care technician and $26 per encounter had it been provided by a registered nurse.

Campbell, J.D., Zerzan, J., Garrison, L.P., and Libby, A.M. (2013). "Comparative-effectiveness research to aid population decision making by relating clinical outcomes and quality-adjusted life years." (AHRQ grant HS19464). *Clinical Therapeutics* 35(4), pp. 364-370.
Comparative effectiveness research (CER) at the population level is missing standardized approaches to quantify and weigh interventions in terms of their clinical risks, benefits, and uncertainty.

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The authors present a framework for population-based decisionmakers to quantitatively weigh and better grasp the collective intervention-specific clinical risks and benefits and their uncertainty.

Cohen, S.B., Rohde, F., and Yu, W. (2013). "Building wave response rates in a longitudinal survey: Essential for nonsampling error reduction or last in—first out." *Field Methods* 25(4), pp. 361-387. Reprints (AHRQ Publication No. 14-R006) are available from AHRQ.*.

This study examined the implications of alternative field procedures for dealing with reluctant respondents in the Medical Expenditures Panel Survey, defined as those who responded at the end of the first-round field period. These reluctant respondents were more likely to be non-Hispanics, elderly, and those residing in metropolitan areas as well as the northeast. Study findings reveal non-uniform results when evaluating the capacity of alternative design strategies to achieve precision targets.

Darney, B.G., Weaver, M.R., VanDerhei, D., and others. (2013). "'One of those areas that people avoid' a qualitative study of implementation in miscarriage management." (AHRQ grant T32 HS13853). *BMC Health Services Research* 13, p. 123.

This process evaluation sought to identify barriers and facilitators to implementation of office-based manual vacuum aspiration (MVA) in family residency sites in Washington State. The researchers found that the common major barriers to implementation were low volume and a perception of miscarriage as emotional and/or like abortion, while the inclusion of support staff in training and effective champions facilitated successful implementation of MVA services.

Daugherty, A., and Raz, N. (2013). "Age-related differences in iron content of subcortical nuclei observed in vivo." (AHRQ grant T32 HS13819). *Neuroimage* 70, pp. 113-121.

The reported in vivo estimates of adult age differences in iron content within subcortical nuclei are highly variable. The authors present a meta-analysis of 20 in vivo magnetic resonance imaging studies that estimated iron content in the caudate nucleus, globus pallidus, putamen, red nucleus, and substantia nigra.

Devine, E.B., Alfonso-Cristancho, R., Devlin, A., and others. (2013). "A model for incorporating patient and stakeholder voices in a learning health care network: Washington State's Comparative Effectiveness Research Translation Network." (AHRQ grant HS20025). *Journal of Clinical Epidemiology* 66, pp. S122-S129.

The authors describe a multisite, longitudinal, prospective, observational cohort study grounded in patient-centered outcome research. They outline the ways in which patients and stakeholders are being incorporated into all aspects of research in the context of a prospective cohort study to compare invasive and noninvasive treatments for peripheral arterial disease, and describe how results are being returned to practice.

Elliott, T.E., Holmes, J.H., Davidson, A. J., and others. (2013). "Data warehouse governance programs in healthcare settings: A literature review and a call to action." (AHRQ grant HS19912). *eGEMs* (Generating Evidence & Methods to improve patient outcomes) 1(1), Article 15.

Because there is extensive data stored in health care data warehouses, data warehouse governance policies are needed to ensure data integrity and privacy. The authors review the current state of the data warehouse governance literature as it applies to health care data warehouses, identify knowledge gaps, provide recommendations, and suggest approaches to further research.

Fitzgibbons, R.J., Ramanan, B., Arya, S., and others. (2013, September). "Long-term results of a randomized controlled trial of a nonoperative strategy (watchful waiting) for men with minimally symptomatic inguinal hernias." (AHRQ grant HS09860). *Annals of Surgery* 258(3), pp. 508-515.

This study assessed the long-term crossover rate in men undergoing watchful waiting (WW) as a primary treatment strategy for their asymptomatic or minimally symptomatic inguinal hernia. The results of the study show that WW remains a safe strategy even on long-term followup. However patients with this condition, especially if elderly, will almost certainly need surgery eventually.

Flannery, K., Resnick, B., Galik, E., and others. (2013). "Reliability and validity assessment of the job attitude scale." (AHRQ grant HS13372). *Geriatric Nursing* 33(6), pp. 465-472.

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The purpose of this study was to provide psychometric support for a measure of job satisfaction, the Job Attitude Scale (JAS), used with nursing assistants who work in long-term care facilities. The study established important evidence of reliability, validity, and generalizability for the JAS when the measure was used in nursing homes and assisted living communities.

Harting, B., Johnson, T., Abrams, R., and others. (2013, October). "An exploratory analysis of the correlation of pain scores, patient satisfaction with relief from pain, and a new measure of pain control on the total dose of opioids in pain care." (AHRQ grant HS21093). ***Quality Management in Health Care*** **22(40), pp. 322-326.**

The researchers evaluated the use of pain scores as an appropriate quality of care measurement by studying the association between pain scores and other pain assessment measures with the total dose of opioid used to treat pain. They found that the individual measures of pain control poorly explained variation in the dose of opioid used to control pain.

Hearld, L.R., Weech-Maldonado, R., and Asagbra, O.E. (2013). "Variations in patient-centered medical home capacity: A linear growth curve analysis." (AHRQ grant HS46501). ***Medical Care Research and Review*** **70 (6), pp. 597-620.**

The purpose of this study was to document the patient-centered medical home (PCMH) capacity of physician practices, defined as the ability to offer a service identified as a component part of the PCMH across 12 different domains over a 26-month period. The research suggests that more attention should be paid to the differential challenges associated with these component parts, instead of treating these programs in aggregate.

Hendrix, K.S., Meslin, E.M., Carroll, A.E., and Downs, S.M. (2013). "Attitudes about the use of newborn dried blood spots for research: A survey of underrepresented parents." (AHRQ grant T32 HS17588). ***Academic Pediatrics*** **13, pp. 451-457.**

The researchers sought to identify the relative importance of factors (parental consent, affiliation of the researcher, whether the child's name is linked to the sample) that impact parents' attitudes toward use of their child's dried newborn blood spots for research purposes. They found that parents strongly prefer that consent be sought for each use of their children's blood spots.

Hernandez, S.E., Conrad, D.A., Marcus-Smith, M.S., and others. (2013). "Patient-centered innovation in health care organizations: A conceptual framework and case study application." (AHRQ grant T32 HS13853). ***Health Care Management Review*** **38(2), pp. 166-175.**

Drawing on peer-reviewed evidence and theory regarding determinants of organizational change, the authors propose a framework for understanding the process of initiating patient-centered innovation. Using an extended case study of an organization in Washington State as an example, they illustrate the framework's applicability and usefulness for understanding the process of innovation.

Khare, R.K., Nannicelli, A.P., Powell, E.S., and others. (2013, October). "Use of risk assessment analysis by failure mode, effects, and criticality to reduce door-to-balloon time." (AHRQ grant HS19005). ***Annals of Emergency Medicine*** **62(4), pp. 388-398.**

Prompt treatment increases the likelihood of survival for patients who have ST-segment elevation myocardial infarction. The researchers use a proactive risk assessment method of failure mode, effects, and criticality analysis to evaluate door-to-balloon time process, to investigate how each component failure may affect the performance of a system, and to evaluate the frequency and the potential severity of harm of each failure.

Kulldorff, M., Dashevsky, I., Avery, T.R., and others. (2013). "Drug safety data mining with a tree-based scan statistic." (AHRQ grant HS10391). ***Pharmacoepidemiology and Drug Safety*** **22, pp. 517-523.**

In this methodological paper, the authors evaluated the tree-based scan statistic data mining method for drug safety surveillance. With the tree-based scan statistic, they assessed the safety of selected antifungal and diabetes drugs and found that it can be successfully applied as a data mining tool in drug safety surveillance using observational data.

Lannon, C.M., and Peterson, L.E. (2013). "Pediatric collaborative networks for quality improvement and research." (AHRQ grant HS21114). ***Academic Pediatrics*** **13, pp. S69-S74.**

The authors describe the collaborative improvement network

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model, provided examples of these networks in pediatrics, and discuss how pediatric collaborative networks can serve to close the quality gap and accelerate the translation of evidence into practice, resulting in improved care and outcomes for children.

McCormick, M.C., Co, J.P.T., and Dougherty, D. (2013). "Quality improvement in pediatric health care: Introduction to the supplement." ***Academic Pediatrics*** **13, S1-S4.**

This article introduces a supplemental issue focused on making readers aware of key developments in quality improvement (QI) policy, practice, education, and evaluation research. The authors discuss papers treating QI evaluation research methods as well as QI in clinical settings and networks.

Newman-Toker, D.E., McDonald, K.M., and Meltzer, D.O. (2013). "How much diagnostic safety can we afford, and how should we decide? A health economics perspective." (AHRQ grant HS19252). ***BMJ Quality and Safety*** **22, ii11-ii20.**

The authors use a case study example to explore complex inter-relationships between diagnostic test characteristics, appropriate use, actual use, diagnostic safety and cost effectiveness. They assess the role of economic analysis and suggest areas for future research related to the public health imperative of better value and safety in diagnosis.

Nkoy, F.L., Stone, B.L., Fassl, B.A., and others. (2013). "Longitudinal validation of a tool for asthma self-monitoring." (AHRQ grants HS18166, HS18678). ***Pediatrics*** **132, pp. e1554-e1561.**

The researchers developed a new tool, the Asthma Symptom Tracker (AST), a paper-based, patient-centered tool designed to facilitate ongoing monitoring of asthma control through weekly assessment of asthma symptoms. Their study of 210 asthma assessments completed during hospitalization and 6 months after discharge found the AST to be reliable, valid, and responsive to change over time.

Nicholas, L.H., and Dimick, J.B. (2013). "Bariatric surgery in minority patients before and after implementation of a Centers of Excellence Program." (AHRQ grant HS17765). ***Journal of the American Medical Association*** **310 (13), pp. 1399-1400.**

In 2006, the Centers for Medicare & Medicaid Services implemented a National Coverage Decision (NCD) restricting Medicare patients to centers of excellence for bariatric surgery. Concerned that the new rule could reduce access for vulnerable populations, the researchers compared rates of bariatric surgery for minority Medicare vs. non-Medicare patients before and after implementation of the NCD.

Nix, M. (2013, September). Guest Editorial: Guideline clearinghouse updates inclusion criteria." ***Ostomy Wound Management*** **59(9). Reprints (AHRQ Publication No. 14-R010) are available from AHRQ.***

Evidence-based clinical practice guidelines (CPGs) are fundamental to high-quality health care. In March 2011, the Institute of Medicine updated its definitions of CPGs. In response, the National Guidelines Clearinghouse, created by AHRQ together with major health care industry organizations, updated its inclusion criteria. The two main changes require that the full text guidelines in English must be available to the public on request and the CPG must have been developed, reviewed, or revised within the last 5 years.

Radecki, R.P. (2013). [Letter]. "Safety of thrombolysis in stroke mimics: Results from a multicenter cohort study." (AHRQ grant HS17586). ***Stroke*** **44, p. e105.**

In this comment on Zinkstok, et al.'s article and the accompanying editorial by Guerrero, the author suggests that it perhaps would be prudent for the National Quality Foundation to endorse a performance measure for thrombolytic therapy requiring patients receiving thrombolysis for acute ischemic stroke to undergo confirmatory testing.

Randhawa, G. (2013). "Moving to a user-driven research paradigm." ***eGEMS*** **(Generating Evidence & Methods to improve patient outcomes) 1(2), Article 2.**

The focus of decisionmakers of health care delivery organizations has been on issues related to care delivery and not on shaping the research agenda by moving to a user-driven research paradigm. The author presents a conceptual framework to clarify the perspective of decisionmakers, as well as the range of factors and the variability in thresholds used to make decisions.

Ritchie, C.S., Hearld, K.R., Gross, A., and others. (2013). "Measuring symptoms in

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community-dwelling older adults." (AHRQ grants HS17786, HS16956). *Medical Care* 51, pp. 949-955.

The researchers sought to understand symptom experience in a population-based sample of older adults. They accomplished this by identifying symptoms common in this population, performing confirmatory factor analyses on the symptom indicators, testing biases in symptom endorsement, and exploring the associations between an inventory of symptoms and other indicators of function and self-rated health.

Russ, A.L., Fairbanks, R.J., Karsh, B-T., and others. (2013). "The science of human factors: Separating fact from fiction." (AHRQ grant HS17902). *BMJ Quality and Safety* 22, pp. 802-808.

There is growing evidence of confusion about human factors science, both anecdotally and in scientific literature. The objective of this article is to describe the scientific discipline of human factors and provide common ground for partnerships between health care and human factors communities.

Salanitro, A.H., Kripalani, S., Resnic, J., and others. (2013). "Rationale and design of the Multicenter Medication Reconciliation Quality Improvement Study (MARQUIS)." (AHRQ grant HS19598). *BMC Health Services Research* 13, p. 230.

Unresolved medication discrepancies during hospitalization can contribute to adverse drug events, resulting in patient harm. The goals of the MARQUIS study are to operationalize best practices for inpatient medication reconciliation, test their effect on potentially harmful unintentional medication discrepancies, and understand barriers and facilitators of successful implementation.

Singh, H. (2013). "Diagnostic errors: Moving beyond 'no respect' and getting ready for prime time." (AHRQ grants HS18252, HS17820). *BMJ Quality and Safety* 22, pp. 789-792.

This editorial introduces a supplemental issue reflecting the novel scholarship and synthesis of knowledge that have been shaped through the Diagnostic Error in Medicine forum presentations and discussions over the last 3 years. The author briefly discusses some of the articles in the supplement. He believes that several areas of opportunity have emerged for study and reduction of diagnostic error.

Srichai, M.B., Barreto, M., Lilm, R.P., and others. (2013). "Prospective-triggered sequential dual-source end-systolic coronary CT angiography for patients with atrial fibrillation: A feasibility study." (AHRQ grant HS19473). *Journal of Cardiovascular Computer Tomography* 7, pp. 102-109.

The purpose of this study was to evaluate image quality, inter-reader diagnostic variability, and radiation dose with the use of prospective ECG-triggered sequential dual-source data acquisition at end systole for evaluation of coronary artery disease in patients with atrial fibrillation. The researchers found that prospectively ECG-triggered end-systolic dual-source data acquisition with arrhythmia rejection and high temporal resolution provides high diagnostic image quality with potentially low radiation doses for patients with this condition.

Toledo, P., Sun, J., Peralta, F., and others. (2013). "A qualitative analysis of parturients' perspectives on neuraxial labor analgesia." (AHRQ grant HS20122). *International Journal of Obstetric Anesthesia* 22, pp. 119-123.

The decision to use, or not to use, neuraxial analgesia is unique for each patient. As part of a quantitative survey published elsewhere, the authors included several open-ended questions in order to investigate patients' perspectives on this subject. This report summarizes the analysis of the answers to these questions.

Watkins, S., Jonsson-Funk, M., Brookhart, M.A., and others. (2013, October). "An empirical comparison of tree-based methods for propensity score estimation." (AHRQ grant HS17950). *HSR: Health Services Research* 48(5), pp. 1798-1817.

The authors illustrate the use of three tree-based methods; bagging, random forest classification, and a single classification tree. They evaluate these methods in the context of an analysis to understand the effect of physical and occupational therapy services on the motor skills of preschoolers who were born with very low birth weight. ■

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